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This report has been prepared by an American Committee acting for the American National Committee, and is presented to the first general meeting of the International Chamber of Commerce by the American National Committee

LETTER OF SUBMITTAL

NEW YORK, N. Y., May 10, 1921.

Walker D. Hines, Esq., *Chairman,*
Committee on Transportation and Communications,
American Section,
International Chamber of Commerce,
7 Rue de Tilsitt, Paris, France.

DEAR SIR:

I am forwarding to you herewith through Mr. J. Rowland Bibbins, Manager of the Department of Transportation and Communications, Chamber of Commerce of the United States, and Secretary of the Committee on Communications of the American Section, International Chamber of Commerce, a report approved by that Committee at its meeting in New York yesterday.

This report has been prepared with a view to its being printed and made available for use by you in connection with the forthcoming London meeting of the International Chamber of Commerce.

There has been so much agitation concerning the bad condition of international electrical communications since the war, that the Committee decided to make a general survey of the situation from the particular viewpoint of the United States, so that you might have before you at London in brief form an authoritative estimate of the present situation. This survey is based upon reports submitted to the Committee by the Commercial Cable Company, the Western Union Telegraph Company, the All-America Cable Company, the Radio Corporation of America, and the American Telephone and Telegraph Company.

It has been impossible for the American companies to present in detail the conditions affecting all parts of the world, but it is believed that the facts presented will form a trustworthy basis for the opinions and conclusions set forth in the report. In general, the report shows something of the damaging effects of the war, and of the very important measures which have been adopted and are now being put into effect to remedy the situation which has already been very substantially improved and which, as the report shows, is constantly getting better.

In view of the constructive measures which are under way, the Committee felt that it would be unwise to urge that the Chamber undertake to act upon the multitude of details which enter into such a vast problem, and that the broad treatment of the subject which has been undertaken was the best mode of procedure.

In preparing this report, the Committee has had in mind not only the worldwide interest in the immediate condition of the communications problem, but also it gave careful consideration to the matter of how best the International Chamber might assist in the future. It has seemed to us that at the London meeting you might lay the foundation for future cooperation between the various national chambers and their respective communications departments or corporations. As the report points out, a sound and efficient intra-national system of communications is essential to an adequate system of international communications, and if the Chamber could secure the cooperation of each of its national sections with their respective national communications organizations, it would establish cordial relations with all communications organizations and administrations everywhere in the world, and thereby lay the foundation for such an understanding of the Chamber and its purposes that its future suggestions and recommendations would be accepted as coming from a friendly and helpful institution whose object is to aid international commerce and business, and which is earnestly desirous of helping to improve international communications upon which the peace and commerce of the world are so dependent.

It is the opinion of the Committee that the Chamber has an opportunity by the judicious handling of this situation, to get on good terms with all of the government administrations and corporations engaged in communications work, and that once this friendly relationship is established, the immense power of the Chamber to assist in improving world communications can be exerted in cooperation with those officially responsible for rendering this service.

Yours very truly,

J. J. CARTY, *Chairman,*
Committee on Communications.

INTERNATIONAL ELECTRICAL COMMUNICATIONS

FROM THE VIEW-POINT OF THE UNITED STATES.

PREFATORY NOTE

The present statement regarding international electrical communications has been prepared by the Committee on Communications of the American Section of the International Chamber of Commerce for presentation at the first biennial meeting of the Chamber at London. The views here presented are from the standpoint of the United States, although the close interlinking of the land line communication systems of the United States with those of Mexico and Canada ties the greater part of the North American continent into a single unit from the standpoint of international communications service.

The conditions described relate primarily to cable and radio communication between the North American continent and countries with which direct cable and radio connections are made. Other conditions are touched upon only in those cases where considerable volumes of North American traffic are involved.

SOME GENERAL CONSIDERATIONS

Efficient international communications service depends only in part upon the establishment of adequate submarine cables and radio stations. Only a fraction of international messages can be carried through from origin to destination by submarine cable or radio alone. The vast majority of messages internationally interchanged must always be collected and distributed by means of land lines in the countries of origin and destination, and a very considerable proportion must traverse, by means of land lines, one or more intermediate countries en route to their destinations. For this reason the problem of an efficient world-wide communications service is intimately connected with, and dependent upon, the adequate development of intra-national systems of communication.

It is the belief of the Committee that in all countries the existing communication companies and administrations are not

unmindful of the national and international needs of electrical communications service, and could more effectively meet such needs if they were given the necessary encouragement and financial support by the public, and if they were freed from all but the most necessary governmental and parliamentary restrictions. It is furthermore the view of the Committee that the International Chamber of Commerce can render no greater service to world communications than by urging upon the chambers of each nation to enter into helpful, cooperative, and constructive relations with those in their respective countries who are charged with the duty of furnishing communications, and that this can best be done by creating public sentiment favorable to the most liberal encouragement of the building up of the various intranational and international communication networks.

We feel that in each country the communication companies and administrations will be glad to cooperate with the various chambers, that they will deeply appreciate such a constructive relationship, and that they will do everything possible for the continued upbuilding and improvement of that adequate network of national and international communications upon which the peace and commerce of the world must henceforth depend.

As a first step towards the establishment of cooperation between chambers of commerce in the different nations, there is submitted herewith a preliminary survey of international communications problems as they now exist. This survey outlines these problems more particularly as viewed from the standpoint of the United States and the continent of North America.

SURVEY OF CONDITIONS

PRE-WAR AND WAR CONDITIONS

At the outbreak of the World War there were in operation 17 submarine cables extending between various landings in the United States and Canada and points in the British Islands, France and Germany.

Service to points in the West Indies and South America was furnished by means of a network of cables and land lines with relay points in Cuba and the West Indies and extensions to the east and west coasts of South America, which gave the equivalent of two direct cables to the west coast, with land line con-

nections across the Andes to the east coast, plus partial east coast service by indirect cable routes from New York south.

Service to China, Japan, and other Asiatic points was furnished by means of a single Pacific cable extending from San Francisco to the Hawaiian Islands and thence to Guam, at which point connections were made with Japan, and through the Philippine Islands with Shanghai and Kongkong. Connection was also made from Guam with the German cables centering at Yap and connecting with Shanghai and the Dutch Indies.

Cable communications with Australia and New Zealand were furnished by means of a single cable having its North American terminal at Vancouver.

While radio communications had been well developed for ship-to-ship and ship-to-shore service, there were in existence only one high-power transatlantic and one high-power transpacific radio circuit.

In general, the prewar cable facilities were reasonably adequate for the then existing traffic, and messages were handled without undue delays so far as cable transmission itself was concerned.

With the outbreak of the war, conditions at once became less satisfactory. In the North Atlantic the reduction in facilities due to the interruption of the two German cables was accentuated by the difficulty experienced in repairing the remaining cables, due not alone to the submarine and cruiser menace, but also to the holding of the available cable repair vessels for long periods on active service within the war zone. At one time there were only 8 cables in operation as compared with 17 in service at the beginning of hostilities.

Further difficulties arose through the calling out of cable and land line employees for military service. This difficulty was rather promptly corrected with respect to cable employees, but land-line operations continued under considerable disabilities from this cause during the entire war period.

Added to these reductions in facilities and drafts upon the operating forces was a very great increase in traffic, which during the latter part of the war period, as the result of increased governmental business and restrictions on the use of cable codes, rose to practically double pre-war volume. This excessive load was only in part relieved by the rapid development of transatlantic radio facilities under military auspices. Furthermore,

practically no new deep-sea submarine cables were laid during the war period.

Communications with Asiatic countries were subject to similar difficulties. The German network centering at Yap was thrown out of service and, in addition, the interruption of the trans-Siberian and the Indo-European land lines made necessary the re-routing via the Atlantic cables and the one Pacific cable, of a considerable volume of traffic which the land lines had previously carried.

Communications with South America were also considerably handicapped by the difficulties of effecting repairs under war conditions, and particularly by the retention of the more powerful cable repair vessels on substantially continuous service in European waters.

IMMEDIATE POST-WAR CONDITIONS

With the signing of the Armistice on November 11, 1918, a rapid improvement in cable facilities took place. The trans-Siberian and Indo-European land lines still remained out of commission, and the disposition of the two German North Atlantic cables and of the German cables centering at Yap remained undetermined. But the majority of the remaining cables were very promptly restored to a condition under which they operated with only normal interruptions.

Conditions as to service were, however, still unsatisfactory. The temporary lull in business which followed the Armistice was succeeded by a period of post-war inflation which resulted in temporary and abnormal demands for international communications. In addition to the continued partial interruption of facilities and to the abnormal volume of traffic, much difficulty was also experienced with the land-line service, particularly in those countries most immediately affected by the war. The transmission of messages over the cable and radio routes took place without excessive delay, but many of the European land line systems suffered not only from the depletion of personnel due to the war, but also from a very great loss of morale among the working forces remaining on duty. In some instances this loss of morale resulted in what were in effect passive strikes, leading to excessive carelessness, errors and delays in the transmission of cable and radio messages over the necessary land line routes to their destinations. These difficulties in operation were accentuated

by the deterioration of the land line plants due to the unavoidable neglect, during the war, of those circuits not necessary for military service.

PRESENT CONDITIONS AND PROJECTED FACILITIES

The conditions which existed during the latter part of the year 1919 and the early part of the year 1920 became very greatly improved during the fall of 1920 and the early months of the present year.

Several factors contributed to this improvement. There was some gain in the efficiency of cable operation and also some amelioration of the land line conditions. The world-wide business depression which set in during the summer and fall of 1920 also very greatly reduced the demand for international communications. And finally, the successful development and commercial installation of high-power radio stations during the latter part of 1920 resulted in such stations taking upon themselves a volume of transatlantic traffic which is at this date reported by the Radio Corporation to be a substantial percentage of the total, in addition to a considerable volume of transpacific traffic.

With these changes in effect, the present situation is substantially better than at any time since the pre-war period. Certain additional facilities and improvements in service are, however, still required and may advantageously be discussed by considering conditions separately for each of the main traffic routes.

NORTH ATLANTIC ROUTES

Of the present submarine cables on this route, 14 are in operation and repairs are under way on 3 additional cables, the completion of which repairs will restore the total of 17 cables existing before the war. The two former German cables were seized by England and France and one is now operated from Nova Scotia to the British Islands, while the other is operated from the United States to France. Projects for additional North Atlantic cables were under way prior to the war, but the recent decrease in transatlantic traffic, combined with the partial relief afforded by newly established radio stations, makes it difficult to state at the present writing just what further cable laying in the North Atlantic should be undertaken immediately.

This phase of the matter is now receiving the careful attention of the corporations and administrations concerned.

The only additions to North Atlantic cables made during and since the war consist of two short links from Valentia, Ireland, to Penzance, England, a distance of 280 miles, one laid during and the other since the war, together with a cable from St. Pierre to Bay Roberts, Newfoundland, a distance of 200 miles, also laid since the war. Immediate projects in the North Atlantic contemplate a short link between North Sidney, Nova Scotia, and Heart's Content, Newfoundland, to increase the flexibility of operation of certain transatlantic cables.

The most substantial additions to North Atlantic facilities since the beginning of the war are, therefore, the high power duplex radio circuits established as follows:

On March 1, 1920, between the United States and Great Britain.

On May 17, 1920, between the United States and Norway.

On August 1, 1920, between the United States and Germany.

On December 15, 1920, between the United States and France.

As previously noted, these radio circuits are now reported by the Radio Corporation to be handling a substantial percentage of the transatlantic traffic. Other radio projects include preparations for the establishment of receiving stations in the United States as rapidly as the completion of additional high-power sending stations in Europe may make them necessary. A further very large project is the multiple sending station now under construction at the eastern end of Long Island, (U. S. A.), which, when completed, will be the most powerful radio station in existence and will be capable of transmitting messages simultaneously to stations which are now projected in Belgium, Italy, Sweden, Denmark, and Poland, as well as in Cuba and elsewhere.

In general, it appears that North Atlantic cable and radio facilities are now greatly improved and it is hoped, with the further improvements contemplated, will be adequate to handle transatlantic traffic without serious delays other than those due to the defective operation of certain land lines hereinbefore re-

ferred to. An important problem which is being carefully studied at this time is that of establishing improved European land line connections in order that full utilization may be made of the transatlantic facilities that now exist or are projected.

PACIFIC ROUTES

The existing cable from Vancouver to New Zealand and Australia is apparently adequate to handle the present traffic even with some moderate increases. The cable from San Francisco to Hawaii, Guam and Japan is seriously overloaded, owing in part to the continued interruption of the trans-Siberian and Indo-European land lines. Some relief has been afforded by the reestablishment on March 1, 1920, of a commercial radio service from San Francisco to Hawaii and Japan.

Important new projects on the Pacific Ocean are, first, that for a new cable following the route of the existing cable to Japan which cable, it is understood, will be laid as soon as arrangements can be made for Japanese landing privileges by the company having the project in hand and, second, for the erecting of a high power radio station in China.

The laying of this additional cable, combined with the restoration to service of the former German cables now centering at Yap, and with the facilities afforded by the new radio route, would most substantially improve the transpacific service.

Further relief will be afforded by the restoration to service of the trans-Siberian and Indo-European land lines.

ROUTES TO CENTRAL AND SOUTH AMERICA AND THE WEST INDIES

A considerable extension of cable facilities over these routes took place during and immediately following the war. An additional cable was laid by a private company from New York to Colon in the year 1915. In 1920 additional cable links were run from Montevideo to Santos and to Rio de Janeiro, for the purpose of increasing the facilities on the east coast of South America, operated in connection with the west coast lines to New York. Other west coast cables were laid in 1920 from Colon to Cartagena, Columbia, and from Santa Elena, Ecuador, to Callao, Peru.

The formal opening of the telephone cable from Havana,

Cuba, to Key West, Florida, on April 11th, 1921, also marked a significant advance in the improvement of international telephone and telegraph communications. Three deep-sea telephone cables were laid between Havana and Key West. Each of these cables carries one telephone message and four telegraph messages simultaneously, thus greatly increasing the telegraph facilities between the Island of Cuba and all parts of the United States and Canada. Telephone conversation has been carried on successfully between Cuba and the most distant parts of the United States. With the new scientific methods employed in these communications it is stated that, if suitable land lines were provided, such as are now in existence between New York and San Francisco, telephone communications could be successfully maintained between the United States and all of the countries of South America, and also between London and Paris and many important cities in Russia and the Far East.

Where the disturbed condition of world affairs continues, no immediate radical improvement in international long distance land line telephone and telegraph communications can be expected from these new developments. They are regarded, however, as of importance as indicating notable scientific advances which can be made more generally available for world communications when and wherever the economic and political world conditions permit.

At the present time, however, in spite of the recent additions to South American and West Indian facilities, there is still a lack of adequate direct connections from the United States, and the North American continent as a whole, to the east coast of South America. As the result of this shortage of facilities, a considerable volume of traffic to the east coast is still routed via Atlantic cables to European points and thence to Brazil and the Argentine Republic. The only existing semi-direct cable to the east coast (that from Haiti to Para, Brazil) was interrupted in 1917 and has not yet been restored.

Immediate projects in connection with South American and and West Indian routes include the cable from Miami, Florida, to Barbados, intended for connection with the east coast South American cables, which has been laid except for the landing at Miami, for which permission has as yet been refused by the United States Government.

Additional cable links proposed in the West Indies and the

Gulf of Mexico include those between Galveston and Tampico; from Fisherman's Point, Cuba, to Porto Rico; and from New Orleans to Tampico; with perhaps another cable from New York to Havana.

Radio connections between North and South America are at present being developed. Static interference in the equatorial region is severe and will involve correspondingly greater expense. Developments and improvements in the radio art are constantly being made, but at this moment static disturbances have the effect of limiting the capacity of all long distance radio circuits, particularly those in the tropics. However, a high-power radio station is now in course of construction in the Argentine Republic for communications with the United States and Europe.

In general, the cables now laid, when restored to or placed in service, together with those in prospect, appear to be adequate for present traffic and traffic immediately in prospect between North and South America. There is also a reasonable prospect that satisfactory radio communications may be established.

SUMMARY

In general, it is believed that, with the necessary improvement in land line connections, and with the completion of cable repairs and radio and cable construction projects now in hand, such great increase in traffic facilities will result that international telegraph communications will be restored to a condition much better than existed prior to the World War; and that in view of the intensive study which is now being devoted to the subject by the administrations and corporations concerned, and by the adoption of the latest developments of science, we may confidently look forward to a new era in international electrical communications. In the establishment of this new era, the International Chamber of Commerce can render a great service to the commerce of the world and to the communication companies and administrations, by creating through its National Chambers a basis of cooperation on the part of business men and the general public with the communication companies and administrations in their respective countries.

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J. J. CARTY, *Chairman.*

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